

# CTS Practice Exam



Certified  
Technology  
Specialist



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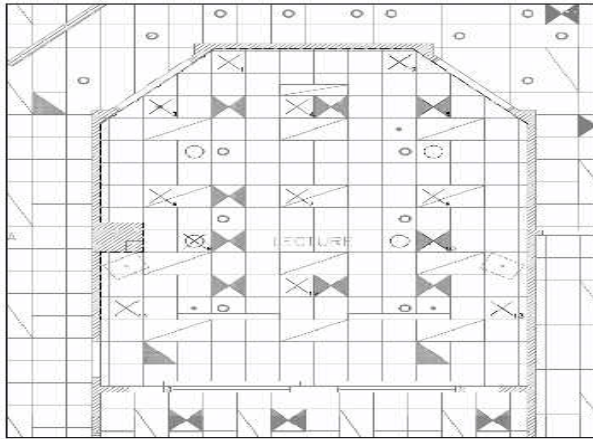
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## Domain A: Creating AV Solutions

### Task 1: Can you interpret site conditions using architectural drawings? Do you know what to observe and document about site conditions?

1. When conducting a site visit, if a ladder is needed what type should be used?
  - A) Any type of ladder.
  - B) Fiberglass or wood.
  - C) Aluminum.
  - D) Plastic.



2. What purpose does this site drawing above use during a site inspection?
  - A) It depicts small items of importance which need to be magnified for study.
  - B) It shows room inside view to see walls and height information.
  - C) It is used to show what is on the walls.
  - D) It is used to show ceiling elements.
3. How is the area of a room calculated?
  - A) Divide the sum of length, width, and height by 3.28084
  - B) Multiply the length, the width, and the height
  - C) Multiply the length by the width
  - D) Divide the width by the length

### Task 2: Can you obtain scale drawings, customer contact information, and customer constraints?

4. When conducting a client needs analysis to prepare the program report or brief, how does the AV professional determine the end user's needs in a given project?
  - A) Bring in as many outside consultants as possible in order to provide legal documentation
  - B) By maximizing the quantity of applications or equipment purchased
  - C) The tasks or functions necessary to implement client goals can wait
  - D) Ascertain the specific activities the client wants to accomplish

5. A fundamental step in supporting the end user's needs is:
- A) determining the overall function of the room or facility type
  - B) determining HVAC system configuration in the building
  - C) determining how the user gains access to the room
  - D) determining how the user is funding the contract
6. What constraints on working at a site need to be noted when collecting site information?
- A) Limitations on activities, time of day, parking & loading, noise
  - B) Types and quality of equipment which can be obtained
  - C) Availability of the manager and head of project
  - D) Costs of overtime pay for employees involved

**Task 3: Can you assess acoustics, lighting, sight lines, furniture layout, etc.?**

7. What factors impact acoustic quality in a given space or venue?
- A) Dimensions and shape of the venue/room; reflected sound and ambient noise
  - B) Lumen rating of projectors used within venue and color scheme
  - C) The type of materials being presented in the AV presentation
  - D) Use of large display with ambient light mixing capability
8. If the displayed text size in a projection presentation is 2-inch/50-mm then the viewer should not be farther away than:
- A) 150 inches/3,810 mm
  - B) 300 inches/7,620 mm
  - C) 50 feet/17 meters
  - D) 75 feet/23 meters
9. To maximize the quality of projected images in a presentation you should ensure:
- A) That there is color temperature balance between the projected image and the ambient light
  - B) That there are no other media used in the room except the projected image
  - C) That there is no outsourced video mode oscillating equipment in use
  - D) That ambient light is controlled in the presentation area.

**Task 4: Can you recommend changes to site acoustics, lighting, sightlines, furniture layout, etc? Can you advise a client regarding changes to structure, zoning considerations, etc?**

10. How can you address ambient noise issues in a room?

- A) Use materials with strong reverberating qualities to counter sounds.
- B) Use acoustically absorptive materials in the room.
- C) Use hard surface materials such as gypsum board.
- D) Use of marble floors and wood paneling.

11. Sightlines for audience viewing in a given presentation space can be improved by:

- A) providing a sloped, or stepped, seating arrangement.
- B) elimination of ambient noise and blue light.
- C) improved allowances for ambient light.
- D) better lighting and projection.

**Task 5: Can you compile site information, document recommendations, present findings to a client and obtain project approval?**

12. In the program phase, what must be determined to assure that a functional AV system scope will be created?

- A) Concerns about what technology will be available for the application.
- B) The specific functions, tasks, and applications of the presenter.
- C) Considerations regarding access to loading dock facilities.
- D) The goals of equipment supplier sales representatives.

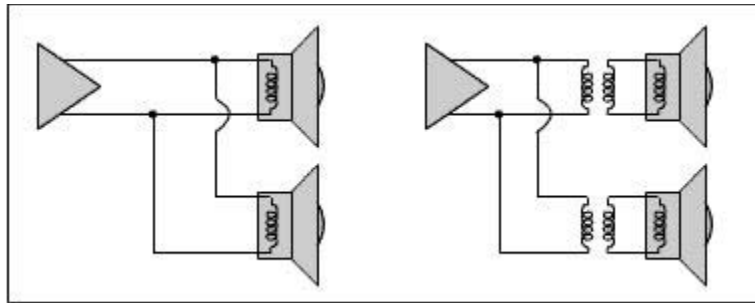
13. In the program report phase of a site analysis what type of documentation is needed?

- A) Architectural and engineering drawings, industry standards, owner/end user information
- B) Building codes and ordinances, owner manuals, equipment directions and applications
- C) Project directories, architect's contact information, public safety impact form
- D) Public health clearances and HUD sound decibel rating information packet

14. How does the AV team present the program report to obtain client approval?

- A) Create a detailed meeting agenda and be sure to document client feedback & suggestions
- B) Prepare several back up presentations and allow the client to suggest stipulation terms
- C) Identify and collect all needed information for the contract to be presented at the end
- D) Use the infrastructure assessment checklist to confirm all requirements

Task 6: Can you determine AV components, develop block diagrams, create specifications and drawings?



15. What type of wiring do both of the images above illustrate?

- A. Combination parallel/series circuit
- B. Stereo pair circuit
- C. Parallel circuit
- D. Series circuit



16. What type of connector is shown?

- A) S-Video
- B) HDMI
- C) DVI
- D) BNC

17. What is the formula for calculating current using Ohm's Law?

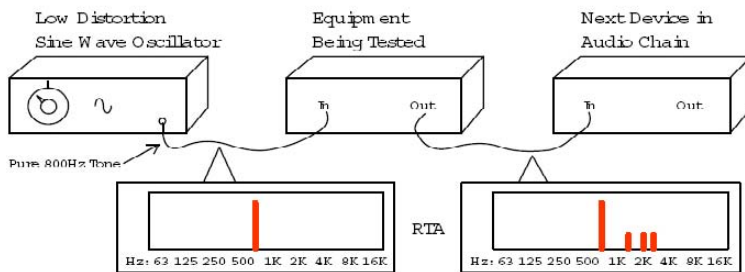
- A)  $I = V / R$
- B)  $I = R/V$
- C)  $I = V * R$
- D)  $I = V + R$

18. What will the resistance be if the voltage is 110 volts at 60 amps?

- A) 2.1 Ohms
- B) 1.8 Ohms
- C) 1.6 Ohms
- D) .55Ohms

19. How are lighting requirements determined for a given amount of space in a venue?

- A) As the distance from a light source is doubled, perceived illumination decreases by 75%
- B) Doubling distance from the light source decreases the illuminated area by 6 times
- C) Set a predetermined standard of actual white light based on light temperature
- D) Consider the inverse square law of amplitude and motion



20. What does the block diagram above illustrate?

- A) Measuring for speaker impedance in a series.
- B) Measuring for frequency response.
- C) Measuring for harmonic distortion.
- D) Measuring decibel sound levels.

### Task 7: Can you present a proposal, negotiate a contract, and review client needs analysis?

21. What should be included in an AV proposal for a client?

- A) Detailed description of all components, accessories, and all costs
- B) Detailed description of the process used to identify user needs
- C) General layout of the venue, project leaders, parking areas
- D) Access diagrams showing connections for water and sewer

22. In presenting a proposal for AV, what is necessary for a contract?

- A) General assumptions about the nature of the work, commitment to speak with client
- B) Statement of specific work proposed, costs and payment schedule, delivery schedule
- C) A waiver of insurance liability for your company, firm cost containment clauses
- D) Ideas for improving the project and financing suggestions for payment

23. How do you maintain a proper focus on customer needs and service?
- A) Communicate with the customer but delay addressing concerns until the contract is signed.
  - B) Listen to customer concerns and try to accommodate immediately if it is feasible.
  - C) By being diplomatic but focused on the needs of one's company as a priority.
  - D) Try to smooth over issues of disagreement by avoiding a commitment.

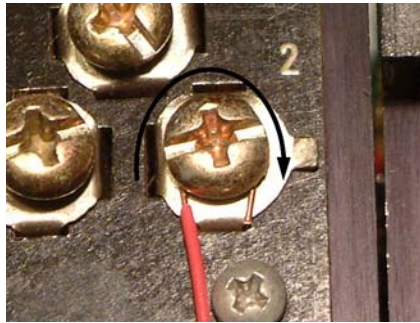
**Task 8: Can you review proposals, seek clarification from vendors, and award contracts?**

24. After hearing the vendors' Request for Proposal (RFP), how do you evaluate the vendor's proposal to determine the best value?
- A) Consult Internet search engines and other on line service rating organizations to get recommendations on vendor.
  - B) Contact other clients who have used this vendor and use their recommended vendors.
  - C) Consider the price, quality, approach, and ability of vendor to fulfill the contract.
  - D) Confer with your clients to see which sub contracting vendors they prefer.
25. How is a contract awarded to a vendor after the vendor is determined to be the best value for a project?
- A) Use the RFP and vendor proposal, negotiate items needing clarification with contract clauses
  - B) Make your contract demands negotiable and flexible to accommodate the vendor terms
  - C) Request contract concessions from the vendor which will lower the price
  - D) Avoid contract negotiations which may cost time and money

**Task 9: Can you develop a marketing message and budget?**

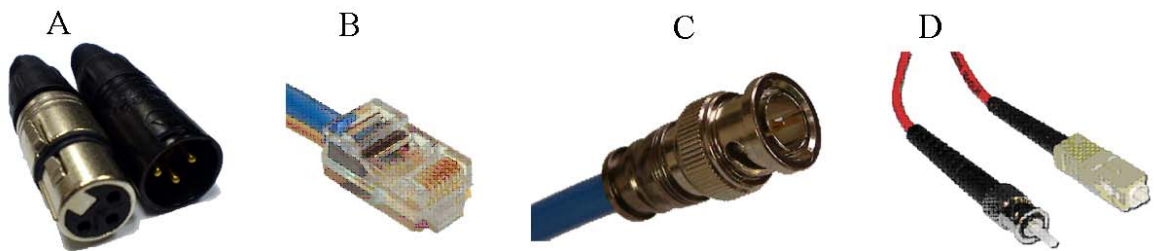
26. In marketing, what is your AV Company's "value proposition"?
- A) Product or service offering which makes your company better or different from others.
  - B) Special discounts you offer to attract customers who will then be repeat business.
  - C) Refer to the bottom line price where a profit can be made on the contract.
  - D) Products which are on sale because you have surplus inventory.
27. How should you establish a marketing budget for your AV Company?
- A) Hire an outside consulting company and let them determine the marketing budget.
  - B) Set the marketing and advertising budget as a percentage of projected sales.
  - C) Create all advertising and commercials in house to avoid costs.
  - D) Select a desired marketing activity as a fixed budget item.

**Task 10: Can you install, set up, and configure equipment? Can you configure network systems? Can you train end users? Can you produce AV events?**



28. The picture above illustrates what type of connection?

- A) Direct connection using stranded conductors
- B) Direct connection using solid conductors
- C) Captive screw compression
- D) RCA phono connector



29. Which of the images above shows a BNC connector?

- A) A
- B) B
- C) C
- D) D

30. When terminating an Ethernet cable, what connector type is normally used?

- A. D-Sub
- B. RJ11
- C. RJ45
- D. XLR

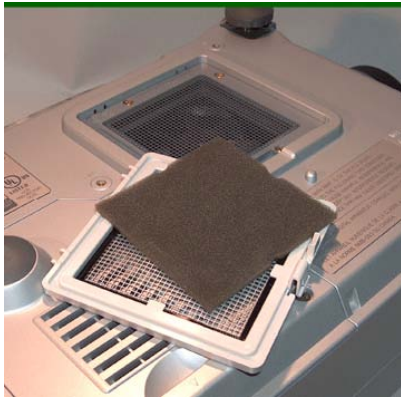
31. What must be considered during rack assembly?
- A) Transportation availability for materials, mobility of equipment, proper storage and alignment.
  - B) Ergonomics of equipment placement, signal separation, heat load, weight distribution.
  - C) Strength of the signal, conduit accessibility, weight of the rack, ventilation at site.
  - D) Availability of technical assistance, the electrical wiring layout, other schematics.
32. If you are projecting onto a screen that is 10 feet (3 meters) wide and your projection distance to screen width ratio is 2.0:1, what should be the distance of the projector from the screen?
- A) 10 feet (3 meters)
  - B) 20 feet (6 meters)
  - C) 30 feet (9 meters)
  - D) 40 feet (12 meters)

### Domain B: Operating AV Solutions

#### Task 1: Can you verify equipment is working properly, operate the solution, and conduct shutdown activities?

33. When checking signal flow, the **FIRST** thing you need to confirm is that the signal is:
- A) passing through the video sending and receiving mixer.
  - B) in compliance with all owner manual warranties.
  - C) reaching properly calibrated display devices.
  - D) being generated by the source components.
34. During the commissioning process for an AV system installation, how will the AV technician confirm that the video display system is working properly?
- A) Connect display devices to a test signal generator, calibrate at points along the path.
  - B) Call the manufacturer representative who will test connections with an oscilloscope.
  - C) Connect all devices in relay directly to an ohm meter to confirm calibration.
  - D) Configure the system using an oscilloscope to confirm signal.
35. At the end of an event how does one quickly and safely strike the event?
- A) Strike equipment by category and divide into teams.
  - B) Bring in outside staff to quickly strike the room.
  - C) Pack all borrowed items and return them later.
  - D) Load video and audio equipment separately.

**Task 2: Can you perform preventive/first line maintenance, test leads and equipment, and document maintenance results?**



36. What preventive maintenance procedure is illustrated above?

- A) Projector air filter replacement or cleaning
- B) Removal of laptop computer hard drive
- C) Laptop computer battery replacement
- D) Projector lamp replacement

37. Why is it very important to document all changes or update activities on an AV system whenever they are performed?

- A) To ensure compliance with all local codes associated with the AV contract.
- B) To ensure use of genuine authorized parts during servicing.
- C) To manage and maintain the system successfully over time.
- D) To maintain good relations with the servicing authority.

**Task 3: Can you manage stock and material levels and liaise with vendors and suppliers? Can you train end user and conduct basic troubleshooting?**

38. How does the AV manager maintain good relationships with suppliers and vendors?

- A) Contact the company at the lowest level following the chain of command.
- B) Document all contacts by using email, stress personal contacts by phone.
- C) Document all transactions, resolve concerns in a professional manner.
- D) Keep a large surplus of inventory and return unused stock frequently.

39. What should be done when you receive a call that there is no sound in a room for an AV event?

- A) Cables should be replaced, make sure no one has altered microphones or speakers.
- B) Replace speaker and mixer to make sure the problem has been corrected.
- C) Check microphone, batteries, and power switches to assure they are on
- D) Re-wire the venue starting from the microphone to the speakers.



43. When properly addressing problems with staff performance or behavior the supervisor must be sure to:
- A) Make it clear to entire staff why the employee is to be immediately terminated.
  - B) Clearly identify and document the problem behavior and instances of it.
  - C) Inform the personnel office that the employee will need counseling.
  - D) Discuss the problem with the office staff and solicit suggestions.

**Task3: From project documentation: Can you identify quantities (equipment, materials, service, content, tools and labor) and estimate cost?**

44. When creating estimates for an AV project what are the primary considerations?
- A) Equipment & material costs, labor costs, estimate markup.
  - B) The contracted requirements agreed to previously.
  - C) Fees for Union dues, state building inspectors.
  - D) Labor costs, miscellaneous costs.

**Task 4: Can you review estimates, purchase orders and proposals, create purchasing list, confirm pricing, make purchases, and follow up on delivery/backorder statuses?**

45. When purchasing AV supplies and equipment for a client AV installation project what needs to be done?
- A) Identify needed equipment, tools and labor, work with vendors for prices and delivery schedule.
  - B) Contact your supplier and inform of your order needs to let them handle the supply delivery.
  - C) Reduce your inventory by eliminating all unnecessary items in storage.
  - D) Avoid reserves and holds when funding the project.

**Task 5: Can you determine burdened (on cost) labor rates? Gather field reports/time sheets? Analyze project expenses? Create project profit and loss documents?**

46. How can labor timesheets and invoices from previous jobs be used to increase efficiency for future AV job estimates?
- A) Modern accounting techniques may reveal tax savings by using environmentally friendly items.
  - B) Categorize expenses into areas to reduce waste and fraud.
  - C) Timesheets and invoices may review excessive costs.
  - D) Analysis of past costs for labor and shipping.

47. A \_\_\_ can be useful by tracking the costs of equipment, materials, and labor for each aspect of a project to determine if these exceeded budgeted amounts.
- A) specialized products initiative
  - B) profit and loss statement
  - C) needs analysis estimate
  - D) yearend audit

## Domain D: Servicing AV Solutions

**Task 1: Can you confirm/clarify reported issue? Review warranty/maintenance agreement status? Identify the problem, and determine corrective action (i.e. repair, replace, remove, etc.)?**

48. A laptop input on a lectern is not working. The interface is connected to a 5 BNC wall plate. The interface is receiving signal and the projector is on the correct input. What is the next step in troubleshooting the issue?

- A) Unplug the cables and using a TDR device, test all the cables.
- B) Reverse the H and V sync cables.
- C) Re-terminate the wall plate.
- D) Replace the interface.

**Task 2: Can you implement corrective action determined in troubleshooting? Verify the resolution, and document the problem and resolution (maintenance logs, materials, time, travel, billables, etc.)?**

49. What should be done if a touch screen control panel is reportedly locked up, frozen, or otherwise reported to be not functioning?

- A) Remove the device, switch it out and return it to the manufacturer for diagnostic checks.
- B) Use a voltage meter to check for continuity, remove mother board and switch it out.
- C) Check all connectors, confirm the screen is not in power saver mode.
- D) Reroute all systems to the nearest functioning system.

50. What should you do if the audio system is emitting a high frequency hiss, or a waterfall sound?

- A) Look for low hanging lights or crossed electrical wiring which is generating interference
- B) Check inputs on the mixer, make sure not set too low, check all input gains
- C) Move microphone away from speakers, you may be getting feedback
- D) Run diagnostics on speakers to make sure they are not blown

## Answer Key & References:

1. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p. 27)
2. **(D)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.40-41)
3. **(C)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.50)
4. **(D)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.59)
5. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.61)
6. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.74)
7. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.87, 424-27)
8. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.88)
9. **(D)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.91-94)
10. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.103)
11. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.104-106)
12. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.114-15)
13. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.115-18)
14. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.125-27)
15. **(C)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.457-58)
16. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.212)
17. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.456-57)
18. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.456-57)
19. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.384-89)
20. **(C)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.145)
21. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.176-77)
22. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.180-81)
23. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p. 180-181)
24. **(C)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.192)
25. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.193)
26. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.201-02)
27. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.203)
28. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.210-11, 467, 497)
29. **(C)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.212-14)
30. **(C)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p. 213-14)
31. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.216-19)
32. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.241,412, 413)
33. **(D)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.257-8)
34. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p. 257)
35. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p. 261)
36. **(A)** (Source: *InfoComm AV Setup Guide, 2007*, p.76-77)
37. **(C)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p. 270)
38. **(C)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p. 274)
39. **(C)** (Source: *InfoComm AV Setup Guide, 2007*, p. 66)
40. **(C)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.289)
41. **(C)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.294)
42. **(C)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.313-14)
43. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.314)
44. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.319)
45. **(A)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.323-24)
46. **(D)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p. 329-330)
47. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p. 332)
48. **(B)** (Source: *InfoComm AV Setup Guide, 2007*, p.62-65)
49. **(C)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.350)
50. **(B)** (Source: *InfoComm Textbook CTS Exam Guide*, by Sven Laurik, 2011, p.355)